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*Published in:*

Proceedings of the 15th International Symposium on Informatics for Environmental Protection

*Publication date:*

2001

[Link to publication in Tilburg University Research Portal](#)

*Citation for published version (APA):*

de Moor, A., & Kleef, R. (2001). Authoring tools for effective societal discourse. In L. M. Hilty, & P. W. Gilgen (Eds.), *Proceedings of the 15th International Symposium on Informatics for Environmental Protection* (pp. 751-756). Metropolis.

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# Authoring Tools for Effective Societal Discourse<sup>1</sup>

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## Abstract

Computer-mediated discussion processes play an important role in achieving sustainable development. However, when used in authoring complex documents, these discussions have so far not been very effective in consistently fostering social change. One reason is that in the design and application of the tools supporting these discussions, the social context is not sufficiently taken into account. The GRASS tool for group report authoring and the freeText tool for document review are authoring tools in which the social context is given more attention. A social context model for discussion processes is outlined. We show how the model can be used to construct information tool environments that help foster more effective discussions.

## 1. Introduction

Globalization leads to an increasing number of complex societal problems related to sustainable development. Their solution requires the involvement of ever more stakeholders, with often strongly opposing interests. Discussion processes play an important role in public debates, developing alternatives, and political decision making. A significant number of electronic discussion tools already exists, such as newsgroups, mailing lists and various web tools. However, so far, computer-mediated discussions have not been very effective in consistently fostering societal change. One important reason is that in the design and application of the tools supporting these discussions, the social context in which the discussion processes are carried out is not sufficiently taken into account. This is especially important when the tools are used not only for discussing the pros and cons of issues, but also for the authoring of structured documents.

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<sup>1</sup> To appear in: Proc. of 15th International Symposium "Informatics for Environmental Protection", Software Workshop Online-Mediation, October 10 to 12, 2001, ETH Zurich, Switzerland.

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In this paper, we aim to chart this social context of discussion processes, and investigate how it can be used in order to help in the development of more effective authoring tools. We start with an analysis of two authoring tools used to support the production of group documents: GRASS and freeText. Next, we present a social context model for discussion processes. We then use this model to compare the functionality and application of GRASS and freeText. We conclude the paper by showing how the model can be used to construct information tool environments that help foster more effective societal discussions.

## 2. Group report authoring: the GRASS tool

In 1993, the Global Research Network on Sustainable Development (GRNSD) was formed. One of the groups it spawned was the B.C. Forests and Forestry Group (BCFOR)<sup>4</sup>. This computer-mediated group consisted of Canadian and international members, ranging from timber industry consultants to environmentalists. The group aimed to produce group reports in which forestry policies in the Canadian province of British Columbia could be critically analyzed, by systematically presenting and contrasting all points of view.

Such a group report is an example of a truly *dialogic text*, in which not one, but many authorial voices are heard. These texts are not written with a single monotonic *group voice*, but instead reflect many different perspectives in the same document, while possessing enough structure to be comprehensible (Harrison and Stephen, 1992).

Not only the *structure* of the group report, but also the authoring *process* has complex requirements. Such a process should conform to what Habermas in his theory of discourse ethics calls the ideal speech situation, where practical rules of discourse guarantee discursive equality, freedom, and fair play (Chambers, 1996). However, operationalizing these ideals into conversation support that actually works is not trivial.

Producing such reports while still using simple mailing list functionality turned out to be unsuccessful. Although a topic for the report was successfully chosen using an extensive voting process with significant group participation, the subsequent authoring process was never concluded.

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<sup>4</sup> <http://infofab.kub.nl/grnsd/bcfor>

To overcome the complex technical and organizational hurdles, the GRASS (Group Report Authoring Support System) project was initiated<sup>5</sup>. GRASS is to provide a balanced mix of information tool functionality and organizational procedures. The overall objective is to help produce concise group reports that answer specific questions. Much attention is paid to the group report structure, which consists of a research problem part, sections, and a conclusion. Within the sections, issues are addressed in argument threads. Different authoring roles are distinguished, such as report and section editors, authors, and readers. Not only the writing of the report itself, but also the dissemination of the results to societal stakeholders is supported. Furthermore, social constraints should be satisfied like the neutrality of the document and the transparency of the authoring process.

### **3. Document review: the freeText tool**

As a second example, we look at freeText<sup>6</sup>, an online tool for the review process of a draft report. It was developed for the Programme for International Co-operation and Conflict Resolution (PICCR) of the FAFO Institute for Applied Social Science in Norway,. FAFO and the Norwegian Institute of International Affairs (NUPI) held a forum on gender and decision making in post-conflict transitions, having over 30 participants from international organisations, governments, NGOs, universities, and research institutes.

The forum did not intend to build consensus, but rather to explore the complexity of the issue. The report produced therefore had to represent the various views of the participants as expressed during the forum. Initially, a draft report was sent out by e-mail and on paper, soliciting individual comments. The editors faced the task of collecting all feedback and then tracing it back to the relevant parts of the document.

Using the freeText tool, however, participants could directly comment in context, thus substantially alleviating the editorial process. Furthermore, using the tool, participants were able to view and reply to each other's comments, engaging in dialogue. This allowed the editors to have better access to the participants as a group, ensuring the report captures the views expressed most accurately.

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<sup>5</sup> <http://infolab.kub.nl/grass>

<sup>6</sup> <http://www.drostan.org/projects/fafo>

#### 4. A social context model for discussion processes

The GRASS and freeText tools demonstrate the complexity of the role of discussion processes in societal applications such as environmental debates or conflict resolution. Authoring entails much more than just starting and supporting some discussion threads, such as envisaged in the issue-based information system (IBIS) paradigm (Conklin and Begemann, 1988). Generalizing from the cases, we started constructing a social context model for authoring processes, to analyze cases in which computer-mediated discussions are used to produce concrete outputs such as group reports.

The model consists of layers of communication processes, each set in a social context of other processes, roles and social norms. At the center of our model are four layers of communication processes, each higher layer embedding the lower ones:

- **Collaborative processes:** Discussion documents such as group reports are not written for their own sake, but play a role in goal-oriented collaborative activities, such as public discourse processes conducted in the mass media, research processes, political decision or policy making, or involving a group of stakeholders.
- **Authoring processes:** Documents should help accomplish the objectives of the collaborative processes. The authoring processes include writing and editing aimed at the construction of document elements, such as a section introduction. Each authoring process may itself require one or more embedded discussions, consisting of support processes regulating interaction processes.
- **Support processes** include discussant registration and moderation processes. Support processes set the direct context for the interaction processes making up the discussion, facilitate it, focus it, and help to converge it, if desired.
- **Interaction processes:** Many discussion tools only allow for the support of discussion threads consisting of posts and nested replies, like web-based newsgroups. More sophisticated tools also allow for issues to be defined and arguments to be constructed. However, these are all still examples of *discussion processes*, at the heart of communication model, but not existing in a vacuum.

Each layer is analysed from three angles: (1) a **structural view** describes the actors and objects in each layer, (2) an **action view** describes the operational processes defined on this structure in which the outputs are generated, and (3) the **change view** describes modifications of the structure and operations of the socio-technical system. Important aspects to be taken into account in each cell are the communication process goals, communication roles, and the social norms that define the authorizations of these communication roles. The following table briefly illustrates the use of this model.

	<b>Structural view</b>	<b>Action view</b>	<b>Change view</b>
<b>Collaboration processes:</b> research, policy-making, conflict resolution	Societal/social organizational structures and roles	Facilitation, mediation, conflict resolution,	Define goals of collaboration, agree upon rules of engagement
<b>Authoring processes:</b> Report writing	Document structure: report elements, authoring roles	Editing, authoring, reviewing	Adapt document structure, change authoring roles
<b>Support processes:</b> participant registration	Digests, archives, participant information	Notification, reminding, registration	Change notification parameters
<b>Interaction processes:</b> discussions	Discussion structure: posts, replies. Interaction roles: discussant, moderator	Raising issues, replying, moderating	Assign moderators, define discussion rules

Table 1: The Social Context Model for Discussion Processes

## 5. Applying the social context model to tool analysis

We have used the social context model to compare the GRASS and freeText tool. The assumption is that for effective societal discourse, all cells of the model need to be addressed to some extent. Space does not permit a full analysis here. To illustrate, we only briefly examine the differences in communication roles between the two tools. Roles are collections of processes that can be conducted by a person in a particular capacity. Each communication process level has its own roles.

GRASS focuses on defining communication roles on the authoring process level. In the structural view, it defines roles as report and section editors, authors, and readers. In the action view, much stress is on the social norms that define the privileges and prohibitions attached to these authoring roles. In the change view, strict procedures have been defined on how actors can change the roles they play. For example, editorial roles can be played by any author interested in doing so by simply registering within a particular timeframe at the start of the report. Despite its strong focus on authoring roles, the roles at the other levels are less developed. No attention has yet been paid to collaborative roles (one possible link would be between *journalist* roles (collaborative

level) that can be *readers* of the reports (authoring level). No support-level roles exist yet, while interaction level roles only consist of issue creators and repliers.

FreeText, on the other hand, focuses on roles for the collaboration and interaction layers. A *facilitator* is a collaboration level role that keeps the social process of a document review going, while the *moderator* is an interaction process role, guiding discussion contributions. One freeText (change) norm says that one person may take both roles. An (action) norm says that a moderator may remove discussion flames, but no specific facilitation process functionality is provided yet.

## 6. Conclusions

Much valuable work on discussion support has already been done, such as the support for issue nets in issue-based information systems (Conklin and Begemann, 1988). Other applications like those part of the Digital Document Discourse Environment (D3E)<sup>7</sup> provide support more directly tailored to authoring structured documents. However, we contend that if discussions are to lead to effective authoring, a social context analysis of the use of such tools and environments is essential. In this paper, we presented a social context model with which we analyzed two such authoring tools, GRASS and freeText. In future research, we intend to use our model to analyze more discussion tools in their context of use. We predict that many patterns in the different communication levels are similar, but that combining them in a different way can lead to substantially different societal effects. The results of these analyses can be used to (1) devise typologies of environmental authoring processes and tools, (2) obtain clearer insights for the creation of tool environments in which a number of existing tools are used for specific, well-defined purposes (for example, an environment consisting of a mailing list for free-style discussions, and an authoring tool such as GRASS or D3E for structuring discussion results) , and (3) generate specifications for the development of new authoring tools.

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<sup>7</sup> <http://d3e.open.ac.uk>

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